Worksheet 6

Sections 2.1 and 2.2

Section 2.1

Problem 1. Evaluate the function at the indicated values.

$$g(x) = \frac{1-x}{1+x},$$

(a) $g(2)$, (b) $g(-2)$, (c) $g(x^2)$, (d) $g(x)^2$, (e) $g(x^2-1)$.

Problem 2. Find the domains of following functions:

(a) $f(t) = \sqrt[3]{t-1}$, (b) $f(x) = \dfrac{x}{\sqrt[4]{9-x^2}}$.

Problem 3. Evaluate the piecewise defined function at the indicated values.

$$h(x) = \begin{cases} x^2 + 2x & \text{if } x \leq -1, \\ x & \text{if } -1 < x \leq 1, \\ -1 & \text{if } x > 1. \end{cases}$$

(a) $f(-4)$, (b) $f\left(-\frac{3}{2}\right)$, (c) $f(-1)$, (d) $f(0)$, (e) $f(25)$.

Section 2.2

Problem 4. Sketch a graph of the piecewise defined function.

$$f(x) = \begin{cases} -x & \text{if } x \leq 0, \\ 9 - x^2 & \text{if } 0 < x \leq 3, \\ -1 & \text{if } x > 3. \end{cases}$$

Problem 5. Find the domain and range of the piecewise function from Problem 4.